

REMARKS/ARGUMENTS

In the Final Office Action of October 16, 2009, claims 1, 2 and 4-9 are rejected. In response, Applicants propose amending claims 1, 5, 7 and 9 and adding new claims 10-13. Applicants respectfully request that the amendments be entered to put the claims in condition for allowance or to put the claims in better condition for appeal. Applicants hereby request reconsideration of the application in view of the proposed amendments and the below-provided remarks.

Claim Rejections under 35 U.S.C. 103

Claims 1, 2, 4 and 7-9 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over acknowledged prior art (APA) in view of Saito et al. (U.S. Pat. Pub. No. 2004/0195618, hereinafter “Saito”). Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over APA in view of Saito and further in view of Hsu et al. (U.S. Pat. App. Pub. No. 2004/0145011, hereinafter “Hsu”). As described above, Applicants propose amending claims 1, 5, 7 and 9 and adding new claims 10-13. Applicants respectfully submit that the pending claims are patentable over the cited references for the reasons provided below.

Independent Claim 1

Applicants propose amending claim 1 to recite in part that “*the spaced regions are narrower than the intermediate trench portions*” (emphasis added). Support for the proposed amendment to claim 1 is found in Applicants’ specification at, for example, page 7, lines 8-13. Applicants respectfully assert that APA in view of Saito does not teach the above-identified limitation of amended claim 1. As a result, Applicants respectfully assert that amended claim 1 is not obvious over APA in view of Saito.

In particular, the Final Office Action on page 3 admits that APA does not teach that “*mutually spaced regions of the second conductivity type are provided immediately below the intermediate trench portions that are connected to source potential, wherein each of said spaced regions extends from the channel-accommodating region on one side of a trench to meet the channel-accommodating region on the other side of the trench*” as

recited in claim 1. Additionally, the Final Office Action on page 3 suggests that Saito teaches the above-identified limitation of claim 1. However, Applicants respectfully assert that Saito does not teach that “*the spaced regions are narrower than the intermediate trench portions*” (emphasis added), as recited in amended claim 1.

As shown in Fig. 19, Saito teaches that a p-type layer (14B) is below a gate insulation film (23a) and a gate electrode (24a) of a trench type structure. (See also paragraph [0085] of Saito). Additionally, Saito teaches that p-type base layers (12) and n⁺-type source layers (13) are located on two sides of the gate electrode (24a). (See Fig. 19 and paragraphs [0081] and [0085] of Saito). The Final Office Action on page 3 suggests that the p-type layer (14B) of Saito is equivalent to the “*spaced regions*” of claim 1. Additionally, the Final Office Action on page 3 suggests that the gate electrode (24a) of Saito is equivalent to the “*intermediate trench portions*” of claim 1. However, Fig. 19 of Saito shows that the p-type layer (14B) is wider than the gate electrode (24a). Because Saito teaches that the p-type layer (14B) is wider than the gate electrode (24a), Applicants respectfully assert that Saito does not teach that “*the spaced regions are narrower than the intermediate trench portions*” (emphasis added), as recited in amended claim 1. Thus, Applicants respectfully assert that APA in view of Saito does not teach all of the limitations of amended claim 1. Accordingly, Applicants respectfully assert that amended claim 1 is patentable over APA in view of Saito.

Dependent Claims 2, 4, 8 and 9

Applicants propose amending claim 9 to replace the phrase “drain regions” with the phrase “*drain region*.¹” Support for the proposed amendment to claim 9 is found in Applicants’ specification at, for example, page 2, lines 6-18. Claims 2, 4, 8 and 9 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 2, 4, 8 and 9 are allowable at least based on an allowable claim 1.

Independent Claim 5

Applicants propose amending claim 5 in a similar fashion to claim 1. Support for the proposed amendment to claim 5 is found in claim 1 and Applicants’ specification at,

for example, page 7, lines 8-13. Because of the similarities between amended claim 5 and amended claim 1, Applicants respectfully assert that the remarks provided above with regard to amended claim 1 apply also to amended claim 5. Accordingly, Applicants respectfully assert that amended claim 5 is patentable over APA in view of Saito.

Dependent Claim 6

Claim 6 depends from and incorporates all of the limitations of independent claim 5. Thus, Applicants respectfully assert that claims 6 is allowable at least based on an allowable claim 5.

Independent Claim 7

Applicants propose amending claim 7 in a similar fashion to claim 1. Support for the proposed amendment to claim 7 is found in claim 1 and Applicants' specification at, for example, page 7, lines 8-13. Because of the similarities between amended claim 7 and amended claim 1, Applicants respectfully assert that the remarks provided above with regard to amended claim 1 apply also to amended claim 7. Accordingly, Applicants respectfully assert that amended claim 7 is patentable over APA in view of Saito.

New Claims 10-13

Applicants propose adding new claims 10-13. Support for claims 10 and 11 is found in Applicants' specification at, for example, page 7, lines 14-21. Support for claims 12 and 13 is found in Applicants' specification at, for example, page 7, lines 22-27. Claims 10-13 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 10-13 are allowable at least based on an allowable claim 1. Additionally, Applicants respectfully assert that claims 10-13 are allowable because of their limitations.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the proposed amendments and the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

Huang et al.

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By: /thomas h. ham/

Thomas H. Ham

Reg. No. 43,654

Wilson & Ham
PMB: 348
2530 Berryessa Road
San Jose, CA 95132
Phone: (925) 249-1300
Fax: (925) 249-0111